# LOCKHEED AIRCRAFT CORPORATION: A SERIES OF CASE STUDIES

Michael R. Goodwin

# NAVAL POSTGRADUATE SCHOOL
## Monterey, California


# THESIS

LOCKHEED AIRCRAFT CORPORATION

A SERIES OF CASE STUDIES

by

MICHAEL R. GOODWIN

Thesis Advisor: Leslie Darbyshire



June 1974

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Lockheed Aircraft Corporation emerged from World War II a financially sound organization with the reputation as one of the country's major manufacturers of both military and civilian aircraft. However, by 1971 Lockheed had amassed debts of over $700 million and claimed that it faced bankruptcy unless the Federal government would provide loan guarantees to its creditors who had refused further credit extensions.

This paper consists of a series of case studies, intended for use in the Management curriculum at the Naval Postgraduate School, which trace the decline of Lockheed through 1971. Major projects which contributed to this decline, such as the Electra, the C-5 Galaxy, the AH-56 Cheyenne, and the L-1011 TriStar are highlighted. All cases were prepared from published materials.

# LOCKHEED AIRCRAFT CORPORATION
## A Series of Case Studies

by

Michael R. Goodwin
Lieutenant Commander, United States Navy
B.S., United States Naval Academy, 1965

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requirements for the degree of

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ABSTRACT

Lockheed Aircraft Corporation emerged from World War II a financially sound organization with the reputation as one of the country's major manufacturers of both military and civilian aircraft. However, by 1971, Lockheed had amassed debts of over $700 million and claimed that it faced bankruptcy unless the Federal Government would provide loan guarantees to its creditors who had refused further credit extensions.

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TABLE OF CONTENTS

# I. INTRODUCTION

In May 1971 legislation to be known as the Emergency Loan Guarantee Act was introduced before Congress. Although the avowed purpose of this legislation was to provide Federal guarantees for loans to major United States corporations having serious financial difficulties, it was widely believed to be specifically aimed toward rescuing the nation's number one defense contractor, Lockheed Aircraft Corporation, from bankruptcy. The operations of Lockheed over the preceding two decades provide an abundance of material which traces the decline of this giant aerospace corporation from the position of an industry leader in the early fifties to near bankruptcy in the seventies.

This thesis consists of a series of case studies, centered around Lockheed's most recent entry into the commercial transport field, the L-1011, which cases outline Lockheed's financial decline from 1952 to 1971. These cases are a result of an interest by Professor Leslie Darbyshire in developing materials for use in the Financial Management courses at the Naval Postgraduate School. Having chosen Lockheed Aircraft Corporation as his subject, Professor Darbyshire spent several months on library research compiling as much data from readily available published sources as possible on the operations of Lockheed since 1957. In December 1973, the author accepted Professor Darbyshire's offer to sponsor development of the Lockheed cases as a thesis project. Additional library research was conducted to extend coverage of the material back through 1954, fill in pertinent material not previously collected, and provide supplementary information on events which, although external to Lockheed, impacted upon Lockheed's operations.

All information contained in these cases was obtained from sources previously published. Specific references to footnotes have been eliminated to facilitate classroom use of the cases. Since the source information for these cases was taken from publicly available material, some bias may exist in its presentation and management personnel at Lockheed, both past and present, may raise objection to some of the views presented. However, information in the public domain is generally the only source by which the average citizen may judge a public corporation.

## II. LOCKHEED AIRCRAFT CORPORATION

### A. L-1011 CASE A

The advent of the jet airliner in the late 1950s ushered in a period of explosive expansion for the commercial airline industry. As comfort increased and travel times were halved, more people began to turn to the airlines as a prime mode of travel. Domestic passenger traffic increased at a rate of approximately 15% per year, and international U. S. passenger traffic averaged more than a 30% yearly increase during the period from 1963 to 1966. For a while the airlines were able to handle these traffic increases by simply adding more flights, but this action was only a temporary solution and caused overall load factors for U.S. carriers to remain virtually unchanged. By late 1965, officials were becoming concerned that aircraft and passenger traffic congestion at major airports would saturate their capability to handle projected traffic loads. Additionally, medium range routes, such as New York to Chicago, began to develop. These routes called for aircraft with a seating capacity equal to or greater than that of the large transcontinental jets but which would be more economical to operate. Europe was becoming especially aware of the need for such an aircraft, and proposals for a European "airbus" were emerging from their airframe manufacturers.

In March 1966, American Airlines issued a preliminary specification sheet to major U. S. airframe manufacturers. These specifications outlined American's requirements for a twin engine jumbo passenger transport. American was interested in an aircraft having a 480 knot speed, a minimum range of 1850 nautical miles, and seating capacity for at least 250 passengers. This event marked the beginning of a hotly contested

and controversial race among major airframe manufacturers to capture the "airbus" market which, by various estimates, held a potential for sales of 400 to 450 aircraft over the next decade.

## B. LOCKHEED 1952-1960

Lockheed Aircraft Corporation entered the decade of the fifties in a strong commercial position on the wings of the highly successful Constellation (a transcontinental transport powered by four conventional piston engines). A total of 216 Constellations had been delivered to customers by 1952, and future deliveries were expected eventually to exceed 500 units over the next eight to ten years. The year 1954 proved to be very eventful for airframe manufacturers and marked the beginning of the jet age for U.S. air carriers. In June, American Airlines President, William Littlewood, turned the major manufacturers' attention to a new area by citing the need for an efficient short-haul aircraft to service routes of under 1000 miles. After much success developing a turboprop heavy-lift transport (C-130 Hercules) for the Air Force, Lockheed announced what would subsequently prove to be a short-lived sales effort to provide commercial air carriers with a fast (440 knot) heavy-lift transport by modifying the Constellation with turboprop engines. In the same time frame, Douglas Aircraft Corporation announced its entry into the jet market by unveiling plans for a turbojet tanker/transport designed as direct competition for the Boeing 707 turbojet, which was already marked for heavy sales to the Air Force as the KC-135. Shortly after the Douglas announcement, Boeing revealed plans to start promoting the 707 as a commercial transport. Rounding out the year, Lockheed Vice President for Engineering, H. L. Hibbard, hinted at that company's furure direction when, taking public notice of a British entry

in the jet race — the Vickers Viscount medium range turboprop — he predicted a potential market of up to 500 aircraft to meet the future needs for short-to-medium range routes.

With the stage thus set, American Airlines again took the initiative in May 1955 by issuing detailed specifications to the major airframe manufacturers for a 400-knot, 60-passenger, 2000-mile range transport which could be in service by late 1958. Lockheed, having just dropped plans for the turboprop Constallation, responded with specifications for what was to become the Electra. In June, American chose the Lockheed design and placed an order for 35 Electras. It appeared that Lockheed had captured another successful hold on the commercial market and that separate, distince markets were developing for medium range and transcontinental aircraft. By deciding to pursue development of a turboprop transport in the face of the emerging turbojet technology, Lockheed had expressed confidence that development of a pure jet aircraft which could efficiently compete with the Electra on short-to-medium range routes was not probable in the foreseeable future. Indeed, in August 1955, Robert Gross, Lockheed President, felt that demand for the Electra would exceed that of any four-engine transport yet produced. While not questioning the inevitability of pure jets, he stated a belief that the present market was more limited than the market for the Electra but promised that Lockheed would be ready with a jet entry "when we feel the market is ready and the timing is right."

As 1955 drew to a close, the turbine powered aircraft came of age as Pan American, Eastern, American, and Braniff signed orders for a total of 55 Boeing 707's, 25 Douglas DC-8s, and 49 Electras. These orders seemed to confirm the Lockheed projections and prompted more official company predictions of a vast market for the Electra. The first hint of a

potential intruder into this market came with the April 1956 announcement by Convair of the design for a 60-passenger turbojet aircraft which could not only compete with the Electra on short-to-medium range routes, but would also have a transcontinental range, as compared to the Electra's 1850 mile limit. The aircraft, later designated the Convair 880, was to be available by January 1960 — only one year after the Electra's first scheduled delivery date. This announcement caught the attention of airlines not already committed to the Electra, since the new 880 would essentially be available to them at the same time as the Electra. If the Convair announcement alone was not enough to worry the Lockheed management, both Boeing and Douglas soon followed with plans for similar aircraft. This competition forced redesign efforts on the Electra to extend the aircraft's range and payload. The resulting effect on performance was as indicated below.

| | Original Specifications 1955 | Final Specifications 1956 |
|---|---|---|
| Cruise Speed (Knots) | 400 | 354 |
| Range (Miles) | 1850-2000 | 2740 |
| Wingspan (Feet) | 95 | 99 |
| Length (Feet) | 101 | 104 |
| Gross Takeoff Weight (Pounds) | 98,500 | 113,000 |

Seemingly undeterred by the Convair competition to the Electra, Lockheed also found an opportunity to get into the pure jet market in August 1956, when the Air Force circulated a requirement throughout the industry for a small twin-jet utility transport and indicated a probable total military sales package of over 1500 aircraft. Lockheed assigned the project to C. L. "Kelly" Johnson, Vice President for Engineering. Within

two hundred forty-one days, Lockheed rolled out the first prototype of the JetStar for testing by the Air Force. Since the aircraft was designed to meet Civil Aeronautics Administration requirements and to be easily produced in either two or four-engine versions, Lockheed hoped not only to capture the Air Force contract but also to corner the market for a small, high-speed business jet. Throughout 1958 and 1959, Lockheed worked on developing the commercial market for the JetStar, pending an Air Force decision to buy the aircraft in quantity. The company was so confident of the JetStar's success that it listed nearly $31 million in development costs as deferred assets on its 1959 financial statements, under the assumption that government reimbursement would come with the first Air Force orders.

Optimism at Lockheed began to dim when the initial rush by commercial carriers to buy the new Electra slowed as pure jets began to dominate the sales picture. By the time the first Electra was delivered in January 1959, orders for the big transcontinental jets numbered 215, while the smaller jets had spurred orders for 86 aircraft and Electra orders stood at 126. With the airlines already turning to the pure jets, the Electra encountered a series of setbacks that doomed it to commercial failure. In August 1959, several Electras developed cracks in the wing surfaces which required redesign and repair efforts. Then, in September 1959, and again in March 1960, an Electra was the victim of an in-flight disintegration. After the 1960 disaster, the FAA imposed strict operating restrictions on all Electras then in service and Lockheed began an extensive investigation and defect repair effort that would eventually cost the company more than $25 million. The program never recovered from these setbacks. At the same time, White House pressure diverted military emphasis from manned aircraft to satellites and missiles, and

the expected large JetStar order failed to materialize. The Air Force ordered only five JetStars and civilian interest generated only twenty-one additional orders. In August 1960, Lockheed President Gross sounded the final notes of the Electra and JetStar ventures as failures. He described the projects as a drain on profits due to lower-than-expected sales and announced that total write-offs for the 1959-1960 period would exceed $100 million.

C. LOCKHEED 1961-1966

The year 1961 was a critical one at Lockheed and appeared to mark the beginning of a period of recovery for the company. Courtlandt Gross had become Board Chairman upon the death of his brother, Robert, early in the year. Then, after absorbing the Electra and JetStar losses, Lockheed retreated from the civilian airframe market and concentrated its efforts in the defense contracting area. Making a strong comeback in the defense market, Lockheed emerged as the number one DoD contractor by the end of fiscal 1962, with contract awards totaling over $1.7 billion. In a November 1963 appearance before the New York Society of Security Analysts, Lockheed Chairman Gross outlined what he saw as the future of the defense industry and the course he had set for Lockheed. He predicted a period of solidifying the industry position in government contracting through continued technological advancement while judiciously increasing the non-defense portion of industry business through diversification and internal product development. However, Mr. Gross also pointed out the industry feeling that the aerospace firms possessed many unique skills which were vital in meeting DoD needs and should be preserved as if they were scarce assets.

By the end of 1963, Lockheed held a strong lead in defense contracting -

holding contracts on the Air Force's primary heavy cargo transport, the C-130 Hercules; the development and production of a new high-speed heavy cargo transport, the C-141; and the research and development on the Navy's Polaris missiles. As the coup of the period, Lockheed had sold the Navy on the ill-starred Electra as a long range turbo-prop antisubmarine warfare aircraft, the P3A. In addition to these lucrative contracts, as Lockheed moved into the 1964-1965 time frame, the company was confidently working toward winning three more large scale government projects.

1. The projected $8 billion development and production contract for the SST. Much of Lockheed's confidence in this area stemmed from experience as the successful developer of the U.S./NATO supersonic F-104 interceptor and the only two Mach 2 production aircraft then in existence — the Air Force's highly classified YF-12 interceptor and the SR-71 spy plane.

2. A $1 billion plus development and production contract for an Army compound helicopter advanced fire support system (later to become the AH-56 Cheyenne). By early 1964, Lockheed had already completed much of the preliminary design work on this aircraft and was confident that final development and production could be accomplished with a minimum of technical problems.

3. A $2 billion Air Force development and production contract for a giant transport aircraft (C-5). Of the three projects, this one appeared to be the easiest for Lockheed to win. It was not expected to require any technological advancements and was, thus, basically an "off-the-shelf" development. Lockheed's background in the existing C-130 and C-141 heavy transport programs gave the company a decided advantage in the competition for this contract.

Lockheed continued a strong financial recovery in the middle sixties. While 1964 sales did drop from the $1.9 billion 1963 figure, net profits rose from $43.2 million to $45.1 million. Exhibits I and II are comparative financial statements for the period from 1962-1966. The subsequent award of the C-5 and AH-56 contracts to Lockheed in early 1965 marked the continued rise of the company's preeminence in defense contracting and assured its retention of the top position on the DoD contractor list.

These contracts, however, also marked the beginning of a new era in defense procurement. Under the guidance of Defense Secretary Robert McNamara, contracts were changed from the normal cost-plus type to a new fixed-cost-plus-inventive-award concept. This new "total package procurement" concept required the contractor to bid a single fixed price for both development and follow-on production. He would be eligible to receive incentive payments for early delivery and/or bettering contract specifications on performance. The intent was to encourage contractors to sharpen their engineering and bidding skills and thereby reduce overruns and discourage "buy-ins" — while also providing protection clauses to cover increased contractor costs due to unforeseen economic conditions.

Moving into 1966 on the bow wave of DoD contracts, Lockheed saw the rising demand for a high-capacity passenger transport as the opening for the company to make a significant shift away from total dependence on defense contracts and, at the same time, return to a position as a major producer of commercial aircraft. In late 1966, while Boeing and Douglas were working with only low-keyed design efforts, Lockheed was already working on initial bid requests for engines, landing gear, and the automatic flight control system. The time was rapidly approaching for a go-ahead commitment to the program and, hoping to get an early lead over competitors, the Lockheed development team was pushing for a final top management decision by early 1967. The Lockheed "airbus" entry, the L-1011, was a tempting route back into the commercial field. While the company would have to fund this venture without the sizable progress payments it was use to with government contracts, funds were not expected to be an overriding problem, even though a new production facility would have to be constructed. Major subcontractors would be asked to work under share-the-risk contracts, similar to those Boeing used in the 747

program, where their reimbursement would be delayed until the aircraft were actually delivered. Additionally, although Lockheed had submitted a "closely shaved" bid for the C-5 contract, it was expected that a later repricing/renegotiation would ensure a positive cash flow to help support the new commercial venture. Finally, the L-1011 team felt that early entry into the project would give Lockheed most of the market in spite of the fact that, except for the handful of Electras sold in the late fifties, Lockheed had not produced a commercial transport since the World War II vintage Constellation, while Boeing and Douglas had dominated the commercial transport field.

EXHIBIT I

COMPARATIVE INCOME STATEMENT*

| Year ending December: | 1966 | 1965 | 1964 | 1963 | 1962 |
|---|---|---|---|---|---|
| Net Sales | 2,084.8 | 1,814.1 | 1,601.0 | 1,930.5 | 1,753.1 |
| Cost of goods sold | 1,810.0 | 1,553.4 | 1,384.7 | 1,713.2 | 1,552.6 |
| Research and development costs | 35.8 | 47.8 | 27.2 | 22.8 | 18.3 |
| General and administrative expenses | 131.6 | 115.3 | 105.8 | 108.8 | 100.3 |
| Income from operations | 107.4 | 98.6 | 83.4 | 85.7 | 81.8 |
| Other income | 2.4 | 1.8 | 2.0 | 2.6 | 2.1 |
| Total earnings | 109.8 | 100.4 | 85.4 | 88.3 | 83.9 |
| Interest Expense | 2.5 | 1.5 | 1.4 | 2.9 | 4.6 |
| Federal income tax | 48.4 | 47.4 | 38.9 | 42.2 | 42.2 |
| Income before extraordinary items | 58.9 | 51.5 | 45.1 | 43.3 | 37.2 |
| Extraordinary items | -- | 2.2 | -- | -- | 13.1 |
| Net Income | 58.9 | 53.7 | 45.1 | 43.3 | 50.3 |
| Earnings per share | $5.28 | $4.86 | $4.25 | $4.03 | $4.70 |
| Cash dividends paid | $2.20 | $2.00 | $1.60 | $1.50 | $1.20 |

*In million of dollars except earnings per share and cash dividends paid

EXHIBIT II

COMPARATIVE BALANCE SHEET*

as of

| ASSETS | Dec 25 1966 | Dec 26 1965 | Dec 27 1964 | Dec 29 1963 | Dec 30 1962 |
|---|---|---|---|---|---|
| Cash | 25.2 | 32.7 | 22.0 | 30.2 | .33.3 |
| Short term commercial paper | -- | 10.0 | 28.9 | -- | -- |
| Receivables - U. S. Government | 187.7 | 173.3 | 147.6 | 190.0 | 207.3 |
| Other, net | 23.8 | 18.9 | 18.3 | 33.4 | 52.6 |
| Inventories | 556.7 | 424.0 | 374.9 | 251.6 | 259.4 |
| Less advances and progress payments | (271.2) | (177.8) | (173.9) | (81.5) | (71.8) |
| Net inventories | 285.5 | 246.2 | 201.0 | 170.1 | 187.6 |
| Prepaid expenses | 29.6 | 14.0 | 10.3 | 13.5 | 17.3 |
| Total current assets | 546.8 | 495.0 | 428.1 | 437.1 | 498.1 |
| Investment in affiliates | 4.8 | 4.3 | 4.3 | 3.8 | 3.5 |
| Property, plant, and equipment | 355.6 | 288.4 | 258.0 | 232.3 | 212.9 |
| Less depreciation and amotrization | (180.4) | (159.0) | (142.7) | (127.9) | (118.6) |
| Net property | 175.2 | 129.4 | 115.3 | 104.4 | 94.3 |
| Deferred charges | .4 | .6 | .5 | .6 | 2.1 |
| Total assets | 727.0 | 629.4 | 548.1 | 545.8 | 598.0 |

*In millions of dollars

COMPARATIVE BALANCE SHEET*
as of

| LIABILITIES | Dec 25 1966 | Dec 26 1965 | Dec 27 1964 | Dec 29 1963 | Dec 30 1962 |
|---|---|---|---|---|---|
| Notes payable to banks | 30.0 | -- | -- | -- | 40.0 |
| Accounts payable | 133.8 | 123.5 | 109.0 | 147.9 | 170.7 |
| Accrued general taxes | 13.3 | 15.8 | 13.5 | 17.2 | 16.8 |
| Federal income and excess profit tax | 39.9 | 30.2 | 33.0 | 32.2 | 42.6 |
| Accrued Liabilities | 65.3 | 51.0 | 46.2 | 43.7 | 48.2 |
| Other Liabilities | 72.0 | 59.4 | 46.5 | 46.6 | 42.3 |
| Advances and deposits on contracts | 22.6 | 34.9 | 18.9 | 9.2 | 17.4 |
| Current Liabilities | 377.0 | 314.8 | 267.2 | 296.9 | 378.0 |
| Debenture, 4.5s, due 1976 | 16.9 | 16.9 | 20.6 | 22.5 | 24.4 |
| Subordinated Debenture, 3.75s, due 1980 | -- | -- | 2.3 | 2.5 | 4.0 |
| Deferred income | 15.5 | 20.2 | 18.7 | 14.1 | 14.4 |
| Total long-term debt | 32.4 | 37.1 | 41.6 | 39.1 | 42.8 |
| Capital stock ($1 par) | 11.2 | 11.1 | 10.8 | 10.7 | 7.9 |
| Paid-in surplus | 73.5 | 71.0 | 64.7 | 63.2 | 62.7 |
| Retained earnings | 233.0 | 195.4 | 163.8 | 136.0 | 106.5 |
| Stockholder's equity | 317.6 | 277.5 | 239.3 | 209.8 | 177.2 |
| Total Liabilities and stockholder's equity | 727.0 | 629.4 | 548.1 | 545.8 | 598.0 |

*In millions of dollars

EXHIBIT III

SUMMARY OF LOCKHEED STOCK PRICES

| Year | High | Low |
|---|---|---|
| 1960 | 24 5/8 | 14 |
| 1961 | 38 7/8 | 19 7/8 |
| 1962 | 42 | 26 |
| 1963 | 44 | 33 3/8 |
| 1964 | 40 7/8 | 31 3/4 |
| 1965 | 69 5/8 | 36 5/8 |
| 1966 | 73 | 49 |

## III. LOCKHEED AIRCRAFT CORPORATION

### A. L-1011 CASE B

Although no official announcement was made, the decision by Lockheed management to pursue their version of the "airbus" venture, the L-1011, was apparently made just prior to March 1967, when the company registered a $125 million debenture issue to finance development operations.

Within three years, Lockheed Chairman Daniel Haughton found his company in serious financial trouble and was faced with the task of trying to restructure Lockheed's position short of bankruptcy. Although Lockheed was involved in several profitable operations, government contracts had encountered cost overruns totaling nearly $1 billion and were absorbing the funds which normally would have been used to support the L-1011 program (which was now in serious danger of collapsing due to a shortage of funds). Of the $400 million line of unsecured credit arranged to finance L-1011 development, $320 million had already been drawn down and the remaining $80 million was being held as a compensating balance. Out of this $320 million, Lockheed had diverted over $170 million to cover part of the cost overruns on the government contracts. A conservative estimate indicated that sales of 250 L-1011s would be required to reach the breakeven point on the project, and, with orders stalled at 181 for over a year, additional funds from new sales were not likely to be forthcoming in the near future.

### B. LOCKHEED OPERATIONS 1967-1970

The Spring of 1967 was an eventful period for the Lockheed Aircraft

Corporation. In March, Board Chairman Courtlandt Gross retired after some thirty-five years as a Lockheed executive. His successor, Daniel J. Haughton, a veteran of twenty-eight years at Lockheed, inherited the task of replacing the revenues, estimated at $2 billion a year, which Lockheed had expected to receive from the SST project (the SST contract had been awarded to Boeing). An immediate solution appeared to be aggressive pursuit of the budding "airbus" market. Several factors made Lockheed's entry into this field, the L-1011, a highly favorable project. First, with several airlines showing a keen interest in an aircraft of this type, Lockheed was far ahead of its competitors, Boeing and Douglas, in being able to offer production and delivery of the L-1011. Boeing had nearly all of its production facilities committed to either its commercial transports (including the new 747 jumbo transport) or the newly awarded SST project and was neither able nor desirous of committing itself to another new development competition. Concurrently, Douglas had fallen behind on deliveries of its DC-8 and DC-9 commercial transports and, facing a severe financial strain, had slowed development of its "airbus" entry, the DC-10, to a token program while working out a merger agreement with the McDonnell Aircraft Corporation. Second, as the price and sophistication of military aircraft increased, the number purchased declined and production runs shortened. Previously, production runs on military aircraft had provided much stability in Lockheed's work force and flow of revenues. More recently, with the commercial air travel boom, the overall industry trend showed production runs for commercial transports had continued to lengthen and now exceeded military runs. Third, after loss of the SST competition, the L-1011 was the only vehicle available through which Lockheed had any prospect of reentering the civilian air transport market. Lockheed's experience with the Air Force heavy transport programs

(C-130, C-141, and C-5) added to corporate confidence that L-1011 development would not be too difficult.

Mr. Haughton's decision to go ahead with the L-1011 was almost immediate, as Lockheed registered a $125 million debenture issue to finance L-1011 development costs. He hoped to capitalize on the company's lead over its competitors by working out final design details with potential airline customers and obtaining sufficient orders to put the aircraft into production before the end of the year. However, the two major prospects for early orders, American Airlines and TWA, could not agree on several critical design features. TWA wanted the aircraft to be powered by three engines and have a transcontinental range, while American favored a two engine design and a 1,850-mile range. This controversy, which was not settled until August 1967, delayed Lockheed's formal presentation of specifications until September 1967. The delay allowed Douglas, rejuvenated with new funds from its merger partner, to cut into Lockheed's early development lead. Even after the September presentation, disagreement prevailed between the airlines and forced Lockheed to make major design alterations to increase passenger capacity further. By the time final specifications were submitted, Lockheed had virtually lost any lead it held over McDonnell-Douglas. Additionally, in the rush to get early orders, Lockheed had failed to design into the L-1011 the future growth potential which would have allowed eventual evolution into an intercontinental version.

As Lockheed moved into 1968, corporate optimism was buoyed by the award of another major DoD development and production contract. After much debate with the Army, Congress finally gave the go-ahead for procurement of the AH-56 Cheyenne rigid-rotor helicopter. A temporary setback did occur in the L-1011 program in February, when American Airlines

unexpectedly announced that it had chosen the McDonnell-Douglas DC-10 over the L-1011. Noting the marked similarity in design and performance between the two aircraft, American cited the continuity of the Douglas name in commercial jet transport production as a major factor in final selection. Lockheed's reaction to the American/McDonnel-Douglas deal was swift and initially effective. Arranging for major subcontractors, under the risk-sharing plan, to amortize non-recurring costs over 350 aircraft vice 250 as originally planned and increasing the number of units required to break even, Lockheed lowered the L-1011 offering price from $17 million to $15 million per aircraft. By early April, contracts had been arranged with TWA, Eastern, Delta, Northeast, and Air Holdings, Ltd. of Britain for sales of 172 L-1011s. The very size of this transaction gave Lockheed back a commanding lead in the "airbus" race and even threatened to disrupt the American/McDonnell-Douglas agreement. Although McDonnell-Douglas gained enough support through an additional contract with United Airlines to justify a DC-10 production start-up, Lockheed had a firm lead in the market going into 1969.

In mid-1969, Lockheed ran into trouble with some of its government contracts. Congress had been investigating cost overruns on DoD contracts and had turned up potential $1 billion overruns on both the C-5 and AH-56 contracts held by Lockheed. The Army became nervous and, citing the cost overrun and claiming failure to meet performance specifications, cancelled the production portion of the AH-56 contract. The technical problems encountered with the Cheyenne were not unusual or insurmountable and, in more normal times, Lockheed would probably have been allowed to work them out. However, with this contract cancellation, Lockheed found itself faced with a significant loss on the program. The company had already invested $100 million of its own funds, and the Army had asked for a

repayment of $54 million in production prepayments. To compound the problem, as Congress continued to pressure DoD to cut cost overruns, the C-5 again came under fire. Bowing to this pressure in the form of fiscal constraints, the Air Force was forced, in November 1969, to cut the order for C-5s from 120 to 81 aircraft. The effect of this action was devastating. Lockheed had planned to develop a commercial version (L-500) of the C-5 for introduction in 1975, as the military run was phased out. The new cutback would close the production lines eighteen months early and either force abandonment of the L-500 or necessitate its introduction at an inopportune time when the airlines were still trying to absorb their new jumbo and "airbus" fleets.

The projections for 1970 looked as dark for Lockheed as 1968 had looked promising. While McDonnell-Douglas continued to receive orders for the DC-10, only nine new L-1011 orders had been placed in almost two years (the count stood at 102 firm and 79 option/follow-on L-1011 orders and an estimated 102 firm and 99 option/follow-on DC-10 orders); and the airlines were beginning to have difficulty arranging financing for purchases of new equipment. Lockheed found that cash to continue operations was suddenly a scarce commodity. The $400 million line of unsecured credit arranged to finance the L-1011 was almost totally expended, the over $170 million having actually been diverted to cover cost overruns on government contracts. With the C-5 cutback, Lockheed's costs on this new program would exceed the contract price by late 1970; and, without a new agreement, payments from the government would cease. Only 31 aircraft would have been completed, and Lockheed was faced with funding the remainder of the 81-aircraft production run out of corporate funds. Although Lockheed held other profitable government contracts, their combined revenues were not sufficient to support the L-1011 program and still cover the three major DoD contract cash drains of the following:

1. $124 million in disputed AH-56 claims.
2. $200 million in disputed shipbuilding claims.
3. $500-$600 million potential C-5 loss

These funding problems killed any hope of gaining relief from a possible L-500 development. If the L-500 were designed to be highly compatible with the C-5, the Air Force would have grounds to demand that Lockheed share C-5 development costs. In order to fend off these Air Force demands, the L-500 would have to be designed so that it would be only 20% compatible with the C-5. This limitation would require an additional $250 million in design and tooling costs to produce the L-500. As if these problems alone were not enough for a single corporation, the Securities and Exchange Commission announced an investigation of top Lockheed officials on charges that, using insider information, they had sold $1.1 million of Lockheed stock just prior to public announcement of the C-5 cost overruns.

In a desperate gamble to find support for his embattled company, Mr. Haughton turned to Deputy Secretary of Defense David Packard. In a March 1970 letter to Secretary Packard, Haughton had detailed the severe cash problem facing Lockheed and stated that, without $576 million in assistance over the coming three years, the company would be forced to suspend production on key government contracts. Mr. Haughton felt the government's response to his request was grossly inadequate and unfair. Secretary Packard had offered Lockheed a settlement which, while it would make $200 million available for continued C-5 production, would require the company to take a fixed loss of $200 million on the overall C-5 contract. As for Lockheed's further L-1011 difficulties, in testimony before Congress, Secretary Packard casually suggested that either receivership or a merger was possibly the best solution.

While Mr. Haughton felt that Lockheed had a firm legal basis for a

favorable court settlement of the C-5 controversy, one further obstacle stood in the path leading from Lockheed's financial swamp. The consortium of banks financing the L-1011 was not willing to renew and/or increase Lockheed's line of credit while the government contract dispute was still unsettled. Thus, lengthy litigation of the government claims could force extended delays or even cancellation of the L-1011. Either of these undesirable alternatives would have further adverse impact on both customer airlines and L-1011 subcontractors.

EXHIBIT I

COMPARATIVE INCOME STATEMENTS*

| Year ending December: | 1969 | 1968 | 1967 | |
|---|---|---|---|---|
| Net Sales | 2,074.6 | 2,217.4 | 2,335.5 | |
| Cost of goods sold | 2,145.9 | 2,140.6 | 2,026.2 | |
| Research and development costs | | | 63.5 | ** |
| General and Administrative expenses | | | 149.9 | |
| Income from Operations | (71.3) | 76.8 | 100.9 | |
| Other income | 7.6 | 8.4 | 5.3 | |
| | (63.7) | 85.2 | 106.2 | |
| Interest expense | 13.2 | 6.9 | 6.8 | |
| Income before tax | (76.9) | 78.3 | 99.4 | |
| Federal Income Tax: | | | | |
| Current | (114.3) | (18.7) | 45.1 | |
| Deferred | 70.1 | 52.5 | -- | |
| | (44.2) | 33.8 | 45.1 | |
| Net income | (37.2) | 44.5 | 54.3 | |
| Earnings per share | $(2.90) | $(3.96) | $4.84 | |
| Cash dividends paid | 19.1 | 24.7 | 26.6 | |

*Amounts in millions of dollars except earnings per share

**After 1967, Lockheed changed accounting procedures to defer Research and Development and General and Administrative expenses, charging them to income when goods were sold.

EXHIBIT II

COMPARATIVE BALANCE SHEETS*
as of

| ASSETS | Dec 28 1969 | Dec 29 1968 | Dec 31 1967 |
|---|---|---|---|
| Cash | 52.1 | 27.7 | 30.8 |
| Short-term commercial paper | | 78.9 | 60.9 |
| Receivables - U. S. Government | 195.6 | 140.0 | 232.3 |
| Other (net) | 49.2 | 96.6 | 31.9 |
| Expected refund of Federal income tax | 114.3 | 21.8 | -- |
| Inventories | 1,948.1 | 1,381.9 | 1,111.7 |
| Less advances and progress payments | (1,447.7) | (1,096.2) | (837.0) |
| Net inventories | 500.4 | 285.7 | 274.7 |
| Prepaid expenses | 15.3 | 12.5 | 29.6 |
| Total current assets | 926.9 | 663.2 | 660.2 |
| Investment in affiliates | 4.3 | 4.5 | 5.2 |
| Property, plant, and equipment | 608.8 | 500.7 | 419.3 |
| Less depreciation and amortization | (271.0) | (234.2) | (205.7) |
| Net property | 337.8 | 266.5 | 213.6 |
| Deferred charges | 2.4 | 2.6 | 2.1 |
| Total Assets | 1,271.4 | 936.8 | 881.1 |

*In millions of dollars

## COMPARATIVE BALANCE SHEETS*

| LIABILITIES | as of Dec 28 1969 | Dec 29 1968 | Dec 31 1967 |
|---|---|---|---|
| Accounts payable | 278.5 | 159.8 | 164.4 |
| Accrued general taxes | 21.0 | 39.1 | 16.3 |
| Federal income and excess profits tax reserve | 108.5 | 19.4 | 13.7 |
| Accrued liabilities | 78.0 | 69.8 | 67.5 |
| Other liabilities | 113.8 | 100.7 | 78.4 |
| Advances and deposits on contracts | 14.4 | 39.2 | 27.0 |
| Total current liabilities | 614.2 | 428.0 | 367.3 |
| Debenture 4.50s, 1976 | 11.3 | 13.1 | 15.0 |
| Subordinated debenture (conv) 4¼s, 1992 | 125.0 | 125.0 | 125.0 |
| Deferred income | -- | -- | 24.0 |
| Notes payable to banks | 200.0 | -- | -- |
| Total long term dept | 336.3 | 138.1 | 164.0 |
| Capital stock ($1 par) | 11.4 | 11.3 | 11.2 |
| Paid-in capital in excess of par | 79.0 | 77.0 | 75.9 |
| Retained earnings | 230.5 | 282.4 | 262.7 |
| Stockholder's equity | 320.9 | 370.7 | 349.8 |
| Total liabilities and stockholder's equity | 1,271.4 | 936.8 | 881.1 |

*In millions of dollars

EXHIBIT III

SUMMARY OF LOCKHEED STOCK PRICES

| Year | High | Low |
|---|---|---|
| 1960 | 24 5/8 | 14 |
| 1961 | 38 7/8 | 19 7/8 |
| 1962 | 42 | 26 |
| 1963 | 44 | 33 3/8 |
| 1964 | 40 7/8 | 31 3/4 |
| 1965 | 69 5/8 | 36 5/8 |
| 1966 | 73 | 49 |
| 1967 | 73 7/8 | 48 3/8 |
| 1968 | 60 5/8 | 46 1/4 |
| 1969 | 50 | 17 |

## IV. LOCKHEED AIRCRAFT CORPORATION

### A. L-1011 CASE C

In May 1971, the Emergency Loan Guarantee Bill was introduced before Congress and, in essence, carried with it the immediate future of the Lockheed Aircraft Corporation. As proposed, the Bill would provide Federal guarantees on loans of up to $250 million to qualified borrowers. Although the legislation was written to have applicability for any business deemed vital to the national economy, it was well understood that the Act was specifically aimed at providing immediate assistance to the financially troubled Lockheed. Stiff opposition was expected in Congress, where memory of the Penn Central Railroad bankruptcy the previous year was still fresh. Time, however, was running out for Lockheed. The company was experiencing a severe cash shortage and was almost certain to collapse without new funds. By an agreement just reached with DoD, Lockheed had accepted a fixed $200 million loss on the Air Force C-5 program; and the L-1011 venture had stalled after the engine subcontractor, Rolls Royce, had been taken over by the British government in bankruptcy proceedings. Both the British government and Lockheed's U.S. bankers were making further L-1011 funds contingent on the Federal loan guarantees. Thus, the ball was passed to Congress.

### B. CONGRESS LOOKS AT LOCKHEED

When Lockheed Chairman Daniel Haughton appealed to Deputy Secretary of Devense David Packard for financial help in March 1970, he opened the door to public scrutiny of the company via Congressional hearings. Secretary Packard's proposed $200 million contingency fund to ensure continued

C-5 production had to be approved by Congress. These hearings provided an open platform for DoD opponents, who delayed approval of the funds for several months. Charges were made that the contingency fund was actually aimed at saving Lockheed's financially troubled L-1011 commercial transport, and calls came for either government take-over of Lockheed's defense projects or, at least, a forced change in the company's top management personnel. Senator William Proxmire, chairman of the subcommittee on government economy, pushed for a full disclosure of Lockheed's cash flow situation and firm guarantees that government funds would not be diverted to any commercial venture. He countered Lockheed's contention that opening the company's books for inspection would reveal confidential information to competitors by pointing out that he was not asking for any more information than a commercial banker would in a similar situation. As a basis for his disclosure demand, Senator Proxmire cited Lockheed's cost inflation of the undefined expense item "other" from an original C-5 contract estimate of $72 million in 1965 to the current figure of $550 million.

## C. THE STALLED L-1011 PROGRAM

During the summer of 1970, while Lockheed was trying to negotiate a settlement with the government on the C-5 dispute, the L-1011 program appeared to be heading into a blind alley. After the initial surge of "airbus" orders, demand from the airlines began to cool. The rate of growth of U.S. carrier passenger traffic had started to show disturbing trends. Although the total number of passengers rose in 1969 and 1970, the rate of growth slowed in 1969, leveled off in 1970, and actually declined in the first months of 1971. This reversal of the growth trend occurred at the same time that the Boeing 747 was being placed into service.

The downturn in business for the carriers was also accompanied by a tightening of credit availability, and the airlines were finding it more difficult to obtain new financing for major equipment purchases. The tabulation below shows the type, number, and load factor (percentage of capacity) for each jet aircraft used by U.S. carriers in 1969-1970. The slowdown was more in evidence during the first half of 1971 when the overall load factors dropped 2.4% for domestic flights and 4.3% for international flights as compared with the same period in 1970.

| Aircraft | In Service | | % of Capacity | |
|---|---|---|---|---|
| | 1969 | 1970 | 1969 | 1970 |
| 747 | 1 | 68 | -- | 47.9% |
| DC-8 | 251 | 252 | 47.2% | 46.6% |
| 707 | 417 | 493 | 48.3% | 48.0% |
| 720 | 128 | 107 | 51.3% | 52.0% |
| 727 | 595 | 625 | 52.6% | 52.6% |
| DC-9 | 314 | 325 | 51.5% | 51.1% |
| 737 | 128 | 134 | 50.1% | 52.3% |
| 880 | 41 | 41 | 54.3% | 53.2% |

The best market potential for additional airbus orders lay in the requirement for an extended range international version. Here again, Lockheed was handicapped. In a critical design mistake, Lockheed had failed to make provisions for easily extending the TriStar's range without major design alterations. The extended range TriStar (the L-1011-8) would have only 40% parts compatibility with the basic L-1011 and would require enlarging the wing by 20%, extending the fuselage, and adding 570,000 pounds to the gross take-off weight. In addition, Rolls Royce would have to make major design changes to the RB.211 engine which, by

some estimates, could cost Rolls Royce an added $200 million in development expenses. This new airplane would sell for $17-$18 million each. Conversely, Lockheed's closest competitor, McDonnell-Douglas, was offering an extended range DC-10-30 which required only minor modifications from the basic DC-10 design (the aircraft's dimensions were unchanged, but heavier structural components and more powerful engines added 120,000 pounds to the gross take-off weight) and was priced at about $16 million each. As a result, while orders for the DC-10 and DC-10-30 continued to be recorded, Lockheed's L-1011-8 "paper airplane" drew no response from the airlines.

By September 1970, it appeared that Lockheed Chairman Haughton was finally on the track to solving his cash shortage problem in the L-1011 program. He had persuaded Lockheed's bankers to exchange the $400 million line of unsecured credit for a $500 million secured loan. The terms of the loan provided $30 million immediately and held $150 million available in reserve, contingent upon settlement of the C-5 dispute with the government (the new loan included $320 million already drawn on the old credit lines). In addition, Haughton had also persuaded the major L-1011 buyers, TWA, Eastern, and Delta, to make an additional $100 million in advance payments. These new funds would provide the badly needed cash to keep the L-1011 in production while Lockheed settled its contract disputes with the government.

Negotiations with DoD dragged on into 1971, with Mr. Haughton remaining firm in refusal to accept Secretary Packard's settlement, which set a $200 million fixed loss on the C-5 program for Lockheed. However, in February, DoD threatened action which would essentially cut off further funds for the C-5 project. Secretary Packard notified Lockheed that, if the dispute had to be taken to court for settlement, the government could

not make any payments in excess of the contract ceiling price until a final court decision had been reached. Lockheed's delicate cash position could not absorb the cut off of C-5 funds during a lengthy litigation process, and Mr. Haughton was forced to accept the $200 million loss settlement in order to keep the company alive.

D. THE ROLLS ROYCE BANKRUPTCY

Within a week of the C-5 settlement, Mr. Haughton came face-to-face with two additional crises. First came the overwhelming news that Rolls Royce was bankrupt. In an audit of Rolls Royce by an outside agency, it was discovered that the original $156 million RB.211 project cost had ballooned to $408 million and Rolls Royce stood to lose up to $500 million in supplying L-1011 engines. The news of the Rolls Royce bankruptcy was closely followed by an earthquake which rocked Lockheed's main plant in Burbank, California. The collapse of Rolls Royce was totally unexpected and left the L-1011 temporarily without an engine. Only three alternatives were open to Lockheed. First, the TriStar program could be scrapped. This proved to be the least desirable course of action because of the tremendous adverse impact upon Lockheed, the customer airlines, and the L-1011 subcontractors. Aside from the loss of several thousand jobs, an estimated $1.4 billion investment would go down the drain (Lockheed - $375 million, creditor banks - $400 million, airlines - $250 million, and subcontractors - $350 million). As a second alternative, Lockheed could redesign the TriStar for a different engine. Both Pratt and Whitney and General Electric could supply an acceptable engine, but Lockheed engineers estimated that the redesign effort necessary to modify the L-1011 would cost at least $100 million and require a delay of up to six months. The third and most attractive alternative centered on negotiation

for a new engine contract with the British government, which had taken over Rolls Royce operations, with the hope of keeping disruption of production to a minimum.

Lockheed chose to stay with the Rolls Royce RB.211 and began working with the British government, the L-1011 buyers, and Lockheed's creditor banks to develop a mutually agreeable solution. For several days, a problem of trust hampered the discussions. The airlines wanted a positive guarantee that the participating banks would not withdraw the promised financial support. The banks wanted a positive guarantee that none of the L-1011 purchasers would back out of their purchase agreements. The British government wanted guarantees that both the banks and the airlines would not renege on any of the agreements. A potential new engine contract was finally worked out by April 1971. The provisions stipulated that the British government would continue to fund RB.211 development and guarantee to provide maintenance and spares for at least twenty years. Lockheed agreed to pay $260,000 more per engine, waive any penalty payments for the expected late delivery of engines, and accept somewhat lower performance specifications. Although the British government was ready to sign the new contract, it was joined by the banks in tacking on one final stipulation. The U. S. Government would have to provide a guarantee of the additional money which the banks were to make available to Lockheed (this new money would extend Lockheed's total loan liability to $650 million). On May 13, amid a storm of controversy, the administration introduced the Emergency Loan Guarantee Bill before Congress.

EXHIBIT I

COMPARATIVE INCOME STATEMENT*

| | Year ending December: 1970 |
|---|---|
| Net sales | 2,535.6 |
| Cost of goods sold | 2,675.7 |
| Income from operations | (140.1) |
| Other income | 12.4 |
| | (127.7) |
| Interest expense | 32.3 |
| Income before tax | (160.0) |
| Federal income tax: | |
| Current | -- |
| Deferred | (73.7) |
| Net income | (86.3) |
| Earnings per share | $(7.60) |
| Cash divident paid | NONE |

*Amounts in millions of dollars except earnings per share

EXHIBIT II

BALANCE SHEET*
as of

| ASSETS | Dec 27 1970 |
|---|---|
| Cash | 40.2 |
| Short-term commercial paper | 39.3 |
| Receivable - U. S. Government | 137.5 |
| Other (net) | 41.6 |
| | 258.6 |
| Inventories | 1,870.0 |
| Less advances and progress payments | (1,176.1) |
| Net inventories | 639.9** |
| Prepaid expenses | 19.4 |
| Total current assets | 971.9 |
| Investment in affiliates | 4.2 |
| Property, plant, and equipment | 662.9 |
| Less depreciation and amortization | (319.5) |
| Net property | 343.4 |
| Deferred charges | 3.1 |
| Total assets | 1,322.6 |

*In millions of dollars

**Includes $467 L-1011 inventory

BALANCE SHEET*
as of

| LIABILITIES | Dec 27 1970 |
|---|---|
| Accounts payable | 244.8 |
| Accrued general taxes | 19.5 |
| Federal income tax and excess profits tax reserve | 33.1 |
| Accrued liabilities | 77.0 |
| Other liabilities | 99.8 |
| Advances and deposits on contracts | 29.2 |
| Total current liabilities | 503.4 |
| Debenture: 4.5s, 1976 | 9.4 |
| Subordinated debenture (conv) 4¼s, 1992 | 125.0 |
| Deferred liability to U. S. Government | 100.0 |
| Notes payable to banks | 350.0 |
| Total long term debt | 584.4 |
| Capital stock ($1 par) | 11.4 |
| Paid-in capital in excess of par | 79.0 |
| Retained earnings | 144.4 |
| Stockholders' equity | 234.8 |
| Total liabilities and stockholders' equity | 1,322.6 |

*In millions of dollars

EXHIBIT III

SUMMARY OF LOCKHEED STOCK PRICES

| Year | High | Low |
|---|---|---|
| 1960 | 24 5/8 | 14 |
| 1961 | 38 7/8 | 19 7/8 |
| 1962 | 42 | 26 |
| 1963 | 44 | 33 3/8 |
| 1964 | 40 7/8 | 31 3/4 |
| 1965 | 69 5/8 | 36 5/8 |
| 1966 | 73 | 49 |
| 1967 | 73 7/8 | 48 3/8 |
| 1968 | 60 5/8 | 46 1/4 |
| 1969 | 50 | 17 |
| 1970 | 21 3/8 | 7 |

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